

**Course Title: DataBase****Sheet #1****Question 1**

Consider the database schema containing the relations:

FILMS (FilmNumber, Title, Director, Year, ProductionCost)

ARTISTS (ActorNumber, Surname, FirstName, Sex, BirthDate, Nationality)

ROLES (FilmNumber, ActorNumber, Character)

This schema has two referential constraints between the relation ROLES and the other two.

Express the following queries in relational algebra and relational calculus:

1. The titles of the films starring Henry Fonda;
2. The titles of the films in which the director is also an actor;
3. The actors who have played two characters in the same film; show the title of the films, first name and surname of the actor and the two characters;
4. The titles of the films in which the actors are all of the same sex.

Question 2

Write an SQL statement for each of the queries in the previous problem.

Question 3

Consider the database containing the following relation:

REPRESENTATIVE(Number, Surname, FirstName, Committee, County, Constituency)

CONSTITUENCIES(County, Number, Name)

COUNTIES(Code, Name, Region)

COMMITTEES(Number, Name, President)

Formulate the following queries in relational algebra and relational calculus:

1. find the name and surname of the presidents of the committees in which there is at least one representative from the county of Borsetshire;
2. find the name and surname of the members of the finance committee;
3. find the name, surname and constituency of the members of the finance committee;
4. find the name, surname, county and region of election of the delegates of the finance committee;
5. find the regions in which representatives having the same surname have been elected.

Question 4

Write an SQL statement for each of the queries in the previous problem.

Best wishes

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